Applicants enclose copies of two of the references requested by the Examiner. It is noted that the reference in the PTO 1449 to PCT 97/02847 is a typographical error. The correct number is WO 97/02487 and a copy of this reference is enclosed. With respect to the Japanese references, Applicants' attorney cannot presently locate the translations previously submitted to the PTO. Copies will be provided when they are located.

Claim 1 has been amended to correct the typographical error noted by the Examiner. Claim 22 has been amended to correct an inconsistency in the claim language.

On the merits, the Examiner rejcted claims 1, 2, 4-6 and 11-13 under 35 USC § 103 as unpatentable over the combination of WO94/27140 (Black) and US 5,185,256 (Nankai). The Examiner asserts that Black discloses all of the elements of claim 1, except for inclusion of the reagents in the separation layer. The Examiner also asserts that Nankai teaches a reagent test strip having an integrated reagent/blood separation layer which has reagents disposed therein. Based on this characterization of the teaching of Nankai, the Examiner asserts that it would have been obvious to use a blood separation layer with reagents (as allegedly taught by Nankai) in place of the separate layers in Black. Applicants respectfully submit, however, that the characterization of the Nankai teaching is in error.

In Nankai, the component of the biosensor which includes the reagents perforated body 18. The Examiner has interpreted this perforated body as serving the function of a blood separation layer. There is, however, no teaching in Nankai which would support this interpretation. For example, exclusion of blood cells imposes certain structural characteristics (such as pore size), yet Nankai contains no teaching to state or suggest that the "perforated body" has these characteristics. To the contrary, Fig. 8 of Nankai shows a filtration layer with a 1 μ pore size placed between the electrodes and the perforated body. If the perforated body had pores of comparable size which would permit it to act as an exclusion layer, then this layer would be superfluous. Thus, the Examiner's interpretation of the Nankai reference appears to be driven by knowledge of the present invention rather than by an actual teaching in the reference. Such reliance on hindsight to construct an obviousness rejection is improper.

The Examiner's reliance on hindsight is further evidenced by the statement of the Examiner concerning the motivation to make the combination. In this regard, the Examiner asserts that the combination would have been obvious because the configuration of Nankai allows the electrodes to be heat treated to provide more stable performance. It must be noted, however, that the electrodes of Nankai and the electrodes of Black are made from different materials. The Examiner has offered no explanation or evidence that would support the idea that electrodes of the type used in Black you benefit from heat treatment in the same way as the electrodes of Nankai. This being the case, there is no objective motivation in the references, to assume that changing the structure of Black to allow heat treatment would provide any benefits.

Applicants note a further reason why a person skilled in the art would not consider the modification of the Black patent as proposed by the Examiner to be obvious. In the Black patent, the membrane is a porous membrane with rather large pores. It functions because of the mobile erythrocyte aggregating agent which produces clumps (rouleaux) of red blood cells that are held back by the membrane. This membrane, however, is formed using solvents which would denature the enzymes and which could react with other reagents, rendering the reagents inactive for the desired reaction. The Examiner has not said why such a modification would have been obvious, nor indicated how the person skilled in the art would accomplish it. Thus, there is no suggestion of an integrated reagnet/blood separation layer as presently claimed.

For the foregoing reasons, Applicants submit that the rejection of claims 1, 2, 4-6 and 11-13 under 35 USC § 103 is in error and should be reversed. The Examiner also rejected claims 3, 7-10 and 14-21 as obvious over the combination of Black and Nankai and further in view of EP 207370 (Jones). Applicants submit that this rejection is in error for the reasons discussed above, and also for the following additional reason.

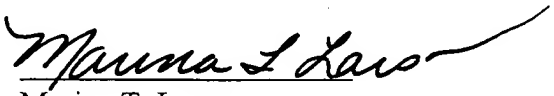
Claims 3, 7-10 and 14-21 include the limitation that the integrated reagent/blood separation layer comprises silica having both hydrophobic and hydrophilic surfaces. The Examiner asserts that Jones discloses devices with an exclusion membrane formed from silica, and thus suggests this limitations. Applicants respectfully disagree.

In Jones, the exclusion membrane is formed from a polymerizable silicone. In the present claims, the integrated reagent/blood separation layer is formed from silica. While the words are similar, and both contain atoms of silicon, the structures are in fact very different. As clearly shown in the Jones references, polymerizable silicones are organic rubber-like compounds made with polyorganosiloxanes and cross-linking agents. In contrast, silica is an inorganic material of the formula SiO_2. (See attached dictionary excerpt). The two materials are not the same and the use of one offers no suggestion of the use of the other. Furthermore, it is not clear where the Examiner is finding a teaching in Jones that the polymerized silicone membrane has hydrophobic and hydrophilic surfaces. For these reasons, Applicants submit that claims 3, 7-10 and 14-21 are independently distinguishable from the cited combination of references.

The Examiner also rejected claims 1 and 22-24 as obvious over the combination of US Patent No. 5,601,694 of Maley and Jones. In setting forth this rejection, the Examiner asserts that Maley discloses "a non-conductive reagent layer disposed over the first conductive element, said reagent layer comprising reagents for the electrochemical detection of the analyte dispersed in a non-conductive matrix." He then states that "Maley et al. do not specifically mention that the matrix is effective to exclude blood cell" but argues that the matrix does provide this function. Applicants respectfully point out, however, that whether or not the matrix of Maley functions as a blood separation layer is irrelevant because the matrix does not include the reagents for electrochemical detection of the analyte. In Maley, the membrane layer 94 is described starting at Col. 17, line 43. It is positioned ***above*** the reagent containing layer 96, and there is no mention in Maley of including reagents in the membrane. Thus, the premise of the rejection of claims 1 and 22-24 over this combination of references is flawed.

In view of the foregoing remarks, Applicants submit that all of the pending claims are in form for allowance. Favorable reconsideration and allowance of all claims are respectfully urged.

Respectfully submitted,



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